Review

Türk Fen ve Sağlık Dergisi
Turkish Journal of Science and Health

Volume 6
Number 3
Year 2025
Pages 189-200

e-ISSN: 2717-7173 https://dergipark.org.tr/tr/pub/tfsd

Received: 24.07.2025 *Accepted:* 17.09.2025 https://doi.org/10.51972/tfsd.1749670

Bariatric Surgery in Adolescent Obesity: A Review of Current Evidence

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ABSTRACT:
Obesity is increasingly recognized as a significant health concern affecting not only adults but also younger populations, including children and adolescents. Type 2 diabetes, dyslipidemia, and hypertension, which are common in adults, are becoming increasingly prevalent in the pediatric population. The onset of these comorbidities at an early age will result in a significantly reduced life expectancy. The widespread nature of obesity in the pediatric population has led to the initiation of various treatments, including surgical interventions at an early age. Certain risks and benefits must be considered when considering surgical treatment in adolescents. In the decision-making process for bariatric surgery in adolescents, not only the potential health benefits and risks but also the ethical, psychological, and social dimensions must be carefully considered. While perioperative and postoperative psychological status changes and patient selection differ significantly from those in adult patients, outcomes after bariatric surgery are similar to those in adult patients. Bariatric surgery in adolescence may be considered among treatment options after the implementation of other therapeutic approaches by a multidisciplinary team, taking into account the adolescent's and family's lifestyle as well as long-term health outcomes.
Keywords: *Adolescent; bariatric surgery; obesity; pediatric obesity*

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INTRODUCTION

Childhood and adolescent obesity has shown a notable upward trend over the past decade in both industrialized and low-to-middle-income countries (Collaborators, 2017). According to the World Health Organization's (WHO) 2022 global health statistics, the prevalence of overweight and obesity among young people has reached alarming levels, with more than 390 million children and adolescents between the ages of 5 and 19 categorized as overweight. Of these, approximately 160 million meet the criteria for obesity, which points to the urgent need for effective public health interventions and preventive strategies targeting this age group. In the United Kingdom, the National Child Obesity Programme reports that 20.1% of children aged 10-11 are obese (Kovacs et al., 2018). Globally, this prevalence has increased at an alarming rate. Obesity adversely impacts health during youth and has long-term consequences. Overweight and obesity are characterized by abnormal and excessive fat accumulation that can adversely affect health. Body mass index (BMI) is a straightforward formula that relates body weight to height, frequently employed to categorize overweight and obesity. According to the standardized growth charts developed by the Centers for Disease Control and Prevention (CDC), children aged two years and older with a BMI between the 85th and 95th percentiles are classified as overweight, and those above the 95th percentile are classified as obese. Similarly, according to the WHO, in individuals aged 5–19

years, overweight is defined as a BMI-for-age greater than +1 standard deviation (SD), and obesity as greater than +2 SD (Antwi et al., 2013; WHO, 2007; CDC, 2024).

It is well-established that the likelihood of developing non-communicable diseases at an early age increases as the severity of obesity increases (Roebroek et al., 2024). The risk of developing non-communicable diseases, including type 2 diabetes, hypertension, and other cardiovascular conditions, is elevated (Bjerregaard et al., 2018; Owen et al., 2009; Umer et al., 2017). Moreover, obese individuals are prone to hepatic steatosis, gallbladder disease, significant orthopedic issues, pseudotumor cerebri, and sleep apnea (Richards et al., 1985). Obese adolescents will continue to suffer the condition into adulthood, resulting in an elevated risk of mortality and morbidity in later life. Effective weight loss measures are essential to mitigate this risk (Freedman et al., 2001; Harris et al., 2009; Must et al., 1992). The management of pediatric obesity employs a structured care approach. A multidisciplinary lifestyle intervention constitutes the initial phase of treatment (Styne et al., 2017). Medical nutrition therapy is regarded as the fundamental component of any obesity treatment protocol. However, severe obesity limits its efficacy. Although individuals following low-carbohydrate, low-fat, high-protein, and low-glycemic index diets often experience temporary improvements in weight loss, maintaining this weight loss in the long term is quite rare due to issues such as lack of motivation, poor adherence, and social and psychological challenges. (Spieth et al., 2000; Wilfley et al., 2007). While certain studies suggest pharmacotherapy for obese adolescents, no current medicine has proven effective in solely decreasing both BMI and related comorbidities (Mark, 2006; Rogovik et al., 2010). While this approach may achieve weight loss in morbidly obese adolescents, it remains an inadequate treatment option for a significant portion of the population in the long term. When comprehensive treatment fails, more effective treatment options are preferred. The American Heart Association issued a statement detailing existing treatments for this expanding disease. Given the limited efficacy of lifestyle treatments, this statement suggests bariatric surgery for adolescents with extreme obesity and obesity-related comorbidities (Kelly et al., 2013).

The aim of this review is to present a comprehensive overview of current evidence evaluating the effectiveness, safety, and long-term outcomes of bariatric surgery in the treatment of adolescent obesity. Additionally, the review seeks to provide up-to-date information on referral criteria, surgical techniques, and potential complications, thereby offering guidance for clinical practice. In this narrative review, a literature search was conducted to evaluate current scientific evidence regarding bariatric surgery in adolescent obesity. The search was performed using the PubMed, Scopus, Web of Science, and Google Scholar databases. The keywords used in the search included “adolescent obesity,” “bariatric surgery,” “metabolic surgery,” “pediatric obesity treatment,” “weight loss surgery in adolescents,” and “long-term outcomes of bariatric surgery.” The study selection criteria included original research articles, systematic reviews, and meta-analyses published in peer-reviewed journals in English or Turkish, focusing on bariatric surgery in adolescents aged 10 to 19 years. Studies involving adult populations, case reports, opinion papers, letters to the editor, and conference abstracts were excluded. In the initial screening phase, titles and abstracts were reviewed, and full texts of eligible studies were retrieved. The studies included in the final evaluation were assessed in terms of content, methodology, and findings, and the results were synthesized qualitatively.

Bariatric Surgery Methods

Bariatric surgery involves different procedures that change the structure of the digestive system, which reduces the size of the stomach and alters the path of food. To be considered for surgery, patients must have a BMI over 40 kg/m² (140% of the 95th percentile) or a BMI over 35 kg/m² (at least 120% of the 95th percentile) along with other health issues; they must have had long-term obesity and health problems even after following a structured weight loss program (not including medication); they should be at Tanner stage 4 or higher; have reached 95% of their adult height; and be willing to make lifestyle

changes (Chalklin et al., 2021; "IPEG Guidelines for Surgical Treatment of Extremely Obese Adolescents," 2008; Styne et al., 2017). The American Society for Metabolic and Bariatric Surgery (ASMBS) acknowledges bariatric surgery as safe for individuals under the age of 18 (Eisenberg et al., 2023). Bariatric surgery is predominantly practiced among adolescents; however, it has been executed in children as young as 5 years old, demonstrating sustained weight loss and swift alleviation of comorbidities (Alqahtani et al., 2021). Roux-en-Y gastric bypass (RYGB), adjustable gastric banding (AGB), and, more frequently, laparoscopic sleeve gastrectomy (LSG) are the most often performed surgeries in severely obese adolescents. The patient's medical, psychological, and social issues are assessed in order to decide the best course of action (Hsia et al., 2012). Table 1 presents the studies and their key characteristics on bariatric surgery in adolescents, including sample size, age range, surgical methods, and outcomes.

Intragastric Balloon

It can be administered in an outpatient setting without the need for endoscopy or anesthesia. The encapsulated device is intended for ingestion by the patient. Upon verifying stomach placement via fluoroscopy or abdominal X-ray, the balloon is inflated with 550 ml of distilled water in accordance with the device's operational guidelines (Oyola et al., 2024). After approximately four months, the distilled water is released from the balloon and excreted naturally via the gastrointestinal tract (Machytka et al., 2017; Salmi et al., 2020).

Intragastric balloon application was found to be a safe and effective short-term weight loss method for overweight and obese adolescents in a study involving 91 adolescents between the ages of 15 and 17 (Oyola et al., 2024). Reece and colleagues reported that in adolescents who underwent intragastric balloon placement, improved psychosocial health and physical activity levels were maintained for 12 months, along with weight loss (Reece et al., 2017). It has been reported to result in substantial enhancements in obesity-related comorbidities (Sachdev et al., 2016; Thomson et al., 2017).

Laparoscopic Adjustable Gastric Band (LAGB)

LAGB is a weight-loss surgery where a synthetic band that can be adjusted is placed around the upper part of the stomach using small incisions, usually 1 to 2 cm below where the esophagus meets the stomach. The band is placed diagonally across the abdomen and fastened with stitches. The benefits of this treatment include no staple lines, the option to reverse the procedure, and fewer nutritional deficiencies compared to malabsorptive techniques. Patients must be consistently examined for band modifications (Hsia et al., 2012). LAGB offers significant benefits for adolescent patients. A meta-analysis has demonstrated substantial enhancements in BMI, type 2 diabetes, and hypertension among patients receiving LAGB (Treadwell et al., 2008). Following the LAGB intervention in adolescents with severe obesity, a comprehensive lifestyle intervention led to substantial weight reduction and improvements in glucose and lipid metabolism at 12 months (Roebroek et al., 2024). The major consequences of LAGB are band displacement and nutritional deficits. Nevertheless, risks include band erosion, port or tube dysfunction, hiatal hernia, wound infection, and bladder distension (Treadwell et al., 2008).

Roux- en Y Gastric Bypass (RYGB)

RYGB is a procedure that is both restrictive and malabsorptive. Despite the rising prevalence of laparoscopic sleeve gastrectomy procedures, RYGB continues to be the preferred surgical technique for adolescents. During the restrictive segment of the treatment, the proximal stomach is sectioned to form a 15-20 cm^3 pouch. The jejunum is segmented roughly 40 cm from the ligament of Treitz. The Roux limb is affixed to the pouch. The biliopancreatic limb is connected to the distal jejunum at a distance of 100-125 cm from the gastric pouch (Treadwell et al., 2008). RYGB has been reported to promote long-term weight loss and improve comorbidities (Pratt et al., 2009). Significant reductions in low-density lipoprotein (LDL) and non-high-density lipoprotein (non-HDL) levels have been observed in adolescents who underwent RYGB (Maffazioli et al., 2016). However, the process is irreversible and results in major changes in the intestine. Nutritional deficits

can emerge if proper eating and required nutritional supplements are not prioritized (Pratt et al., 2009). Complications that might arise following RYGB include pneumonia, malnourishment, pulmonary embolism, deep vein thrombosis, anastomotic obstruction, staple line leakage, jejunojejunal anastomotic blockage, incisional hernias, and wound infections. Examples of long-term consequences include stoma stenosis, the development of a gastrogastric fistula, disruption of the gastric staple line, and internal herniation (Xanthakos et al., 2006).

Table 1. Overview of Studies on Adolescent Bariatric Surgery

Author (Year)	n	Age	Surgery method	Results/Outcomes
Shehata et al. (2025)	63	10-19	LSG	Significant reduction in BMI and comorbidities such as diabetes and hypertension at 7-year follow-up.
Oyola et al. (2024)	91	15–17	Intragastric Baloon	It provided effective and safe weight loss in the short term.
Roebroek et al. (2024)	53	14-16	LAGB	A multidisciplinary lifestyle intervention was found to result in significant weight loss and improvement in glucose and lipid metabolism after 12 months.
Mitchell et al. (2023)	66	13-24	LSG	LSG leads to progressive changes in bone health over 2 years and may cause increased skeletal fragility in adolescents.
Khidir et al. (2018)	91	14-19	LSG	Significant weight loss has been observed in adolescents undergoing LSG, and it has been reported to be effective in the prevention and treatment of diabetes and prediabetes.
Olbers et al. (2017)	100	13-18	RYGB	Significant weight loss was achieved over the 5-year follow-up, and improvements were observed in comorbidities and risk factors. However, nutritional deficiencies were also noted.
Maffazioli et al. (2016)	46	16-21	RYGB	Significant decreases in LDL and non-HDL cholesterol levels.
Inge et al. (2016)	242	<19	RYGB/LSG	Improved cardiometabolic health and quality of life; risks include micronutrient deficiencies and additional abdominal interventions.
Xiao et al. (2015)	28	<20	RYGB/LSG	Subclinical kidney injury persists post-surgery despite weight loss; long-term kidney monitoring recommended.
Xiao et al. (2014)	242	<19	RYGB/LSG	Early kidney dysfunction observed pre-surgery with some severely obese adolescents; future studies needed to assess reversibility after weight loss.
Landau et al. (2011)	7	13-18	LSG	Weight loss, improvement in comorbidities, and success without complications have been reported.
Marceau et al. (2010)	13	15-17	BPD/DS	Significant weight loss and improvement in comorbidities, but risk of serious complications and nutritional deficiencies.
Papadia et. (2007)	78	14-18	BPD	Significant weight loss observed; considered safe with accurate and continuous follow-up.

Laparoscopic Sleeve Gastrectomy (LSG)

Laparoscopic Roux-en Y gastric bypass remains the predominant bariatric surgical surgery; nevertheless, LSG is gaining traction as a viable alternative among both adults and children (English et al., 2018; Li JianFang et al., 2013; Nguyen & Varela, 2017). The procedure involves severing the short gastric vessels and then extirpating the greater curvature of the stomach approximately 6 cm from the pylorus, proximally to the esophagogastric angle. The benefits of this procedure are that it doesn't involve any foreign objects, there are no band adjustments like with LAGB, it has fewer nutritional deficiencies compared to malabsorptive procedures, and it lowers the chance of dumping syndrome because it keeps the vagus nerve safe. One of the drawbacks is irreversibility (Treadwell et al., 2008). A study involving obese adolescents with an average age of 16.2 years indicated substantial weight reduction, enhancement of comorbid conditions, and the

absence of problems (Landau et al., 2011). A notable decrease in BMI and chronic conditions, including diabetes, hypertension, sleep apnea, and dyslipidemia, was recorded in 63 adolescents after 7 years of follow-up post-LSG, as reported in 2025 (Shehata et al., 2025).

Biliopancreatic Diversion with Duodenal Switch (BPD/DS)

The laparoscopic duodenal switch with biliopancreatic diversion is a malabsorptive procedure that preserves the pylorus while excising the Roux segment of the duodenum, located 3–4 cm from the pylorus. This method circumvents the distal ileum by 250 centimeters. Consequently, merely 100 cm of intestine is subjected to both digestive enzymes and food (Treadwell et al., 2008). A study of adolescents receiving biliopancreatic diversion reported substantial weight reduction and marked enhancement in comorbidities (Marceau et al., 2010) (Table 1). Although it is a very effective method for weight loss, its use is not widespread due to increasing nutritional deficiencies (Buchwald & Williams, 2004).

Preoperative and Postoperative Nutrition

Patients should undergo a nutritional assessment before any procedure. A comprehensive assessment is necessary, particularly for malabsorptive procedures. The nutritional assessment should include preoperative eating behavior, dietary education, and preoperative weight loss. It should also provide information about food composition, alternatives, and guidance on determining appropriate portion sizes. To prevent the incidence of micronutrient deficiencies and any existing deficiencies in obese adolescents undergoing bariatric surgery, multivitamin use should be initiated preoperatively. A balanced diet containing adequate protein, fruits, vegetables, and whole grains should be recommended preoperatively. These dietary recommendations also support weight stabilization or weight loss (Fullmer et al., 2012). Preoperative low-calorie diets reduce liver volume, increasing the success of the surgical procedure (Els, 2014). In the postoperative period, a clear liquid diet should be planned for the first 24-48 hours, followed by a liquid diet for weeks 2-4, a pureed diet for weeks 4-6, a soft diet for weeks 7-9, and a lifelong standard diet starting at week 9, depending on the patient's tolerance. The primary goal of the postoperative diet is to support weight loss while maintaining lean body mass. Therefore, a high-protein diet limited to high-glycemic carbohydrates, no added sugars, and a moderate fat content of 1.0–1.5 grams per kilogram of ideal body weight is recommended (Fullmer et al., 2012). According to the Turkish Society of Endocrinology and Metabolism (TEMD) Bariatric Surgery Guidelines, there is no evidence-based, standard dietary guide for the preoperative and postoperative nutritional management of patients undergoing bariatric surgery. Personalized nutrition programs should be developed for the individual (Turkish Society of Endocrinology and Metabolism, 2019).

Nutritional & Developmental Outcomes

Evidence suggests that bariatric surgery can serve as an efficacious method for controlling obesity in adolescent individuals. Nevertheless, it presents detrimental effects, such as deficits in vitamins and minerals. Nutritional deficiencies are a major problem in adolescents, necessitating lifelong nutritional monitoring and supplements for those who undergo bariatric surgery (Desai et al., 2016). Common vitamin and mineral deficiencies observed after surgery include iron, thiamine, vitamin D, folic acid, and vitamin B12. Increased nausea and vomiting may exacerbate nutrient deficits (Wasserman & Inge, 2014). Untreated micronutrient deficiencies are linked to various systemic diseases, including autoimmune disorders, cognitive impairment, and increased susceptibility to infections (Brenton et al., 2014; Stevens et al., 2022; Zhang et al., 2022). The American Society for Metabolic and Bariatric Surgery (ASMBS) recommends monitoring specific micronutrients and supplementing as necessary before surgery and at 2 and 6 months post-surgery (Parrott et al., 2017).

Due to the reduced intake of both macronutrients and micronutrients in adolescents, which can lead to growth and developmental disorders after bariatric surgery, and the inadequate absorption in the small intestine during procedures that restrict absorption,

attention should be paid to growth parameters. Studies on the long-term effects of bariatric surgery in adolescents are limited. However, when bone mineralization is considered, calcium deficiency increases at an alarming rate. Studies have found a significant loss of bone density in adolescents within 2 years after bariatric surgery (Kaulfers et al., 2011; Mitchell et al., 2023). Further, improvements in metabolic variables (insulin levels, blood lipids, etc.) following bariatric surgery have been linked to improved adolescent growth and development (Järvholm et al., 2024). It has been shown that there is an elevation in testosterone levels in men, enhanced insulin sensitivity in females, and improved menstrual periods accompanied by decreased testosterone and cholesterol levels (Dhindsa et al., 2022; Eid et al., 2014). Data about long-term outcomes exceeding ten years in this domain is inadequate. Consequently, we require more extensive, prospective trials with long-term follow-up data on adolescents receiving bariatric surgery.

The Effect of Bariatric Surgery on Chronic Diseases

The growing obesity epidemic is accompanied by an increase in chronic kidney disease (CKD) (Wahba & Mak, 2007). Studies reveal a potential link between obesity and 24-33% of all renal illnesses. (Wang et al., 2008). The Longitudinal Assessment of Bariatric Surgery in Adolescents (The Teen LABS) study found that some severely obese adolescents having bariatric surgery showed early signs of chronic kidney disease, including protein in their urine and a much lower kidney function before the surgery (Xiao et al., 2014). Xiao et al. indicated that adolescents with severe obesity (mean BMI 48 kg/m²) exhibited elevated urinary excretion of novel kidney damage biomarkers (NGAL, IL-18, and KIM-1) in the absence of microalbuminuria or renal function impairment, and that this subclinical kidney damage persisted one year post significant weight loss following bariatric surgery. This indicates the necessity for vigilant and sustained observation of renal health in these adolescents (Xiao et al., 2015). To assess whether early kidney impairment linked to severe obesity would ameliorate post-bariatric surgery, Edward and colleagues examined 242 individuals with a mean age of 17 years and noted enhancements in kidney function and albuminuria (Nehus et al., 2017). Bariatric surgery enhances kidney health indicators in individuals with severe obesity; however, the relationship between this improvement and the patient's age at the time of operation remains ambiguous. In a study involving 161 adolescents and 396 adults undergoing Roux-en-Y gastric bypass, adolescents with preoperative type 2 diabetes exhibited a significantly greater prevalence of elevated urinary albumin-to-creatinine ratio (UACR) prior to surgery compared to adults (22.5% vs. 9.0%) and demonstrated a more rapid recovery from elevated UACR levels post-surgery than adults. However, no significant improvement in kidney function was observed after surgery in adolescents and adults without diabetes. These studies demonstrate that bariatric surgery provides significant improvements in markers of obesity-related nephropathy and diabetic kidney disease (DKD), beyond those achieved with current medical therapies. However, the mechanisms by which bariatric surgery alleviates kidney disease are not yet clear. Kidney disease is not specified as a selection criterion for bariatric surgery in international guidelines. However, a growing body of adolescent data supports the inclusion of kidney disease as a comorbidity that would justify surgical consideration (Bjornstad et al., 2020).

Type 2 diabetes is becoming recognized as a major threat to human health in the 21st century and is closely associated with obesity (Kahn, 2003). It is reported that weight loss may contribute to glycemic control by improving insulin sensitivity and beta cell function (Grams & Garvey, 2015). The effects of interdisciplinary lifestyle therapies on weight reduction and the alleviation of obesity-related comorbidities are not enduring. A meta-analysis published in 2019 indicated weight regain between 1 and 12 years and heightened incidences of anemia and iron insufficiency in the long run among adolescents who received bariatric surgery. A consensus regarding the sustainability of bariatric surgery has yet to be established (Ruiz-Cota et al., 2019). Nevertheless, a study in 2023 demonstrated that bariatric surgery was more effective than medical treatments for the treatment of obesity and

glycemic control in adolescents (Zhu et al., 2023). LSG and LRYGB are the primary bariatric surgical techniques employed in the management of type 2 diabetes (Melissas et al., 2017).

Adolescents with severe obesity exhibit a more adverse profile of cardiometabolic risk factors than their healthy counterparts, with early indications of vascular dysfunction and atherosclerosis observed (Freedman et al., 2007). Adolescents who undergo bariatric surgery show significant improvements in cardiovascular risk variables with increased weight loss (Michalsky et al., 2018). Three years after bariatric surgery, Inge et al. found that adolescents who had the treatment had significantly improved dyslipidemia and high blood pressure (Inge et al., 2016). In their research involving 242 adolescents with a mean age of 17 who underwent bariatric surgery, Michalsky and colleagues demonstrated early improvements in cardiometabolic risk factors, including systolic blood pressure, diastolic blood pressure, and triglycerides, along with a reduction in their prevalence (Michalsky et al., 2018). In summary, although significant studies demonstrate the positive effects of bariatric surgery on the improvement of chronic diseases, the existing evidence is limited, and long-term follow-up studies are needed.

Psychological Effects of Bariatric Surgery

Severe obesity is linked to heightened physical health risks as well as compromised mental health, especially during adolescence and young adulthood (Martyn-Nemeth & Penckofer, 2012; Morrison et al., 2015; Onyike et al., 2003). Certain studies indicate a heightened risk of suicide and self-injury in individuals undergoing bariatric surgery (Goueslard et al., 2022; Neovius et al., 2018). In 2018, a meta-analysis found that 0.3% of people who had bariatric surgery also committed suicide (Lim et al., 2018). Many factors can be attributed to these psychological disorders, including insufficient weight loss or subsequent weight regain, changes in peripherally secreted peptides that can increase depression and addiction, both of which can affect mood, and the emergence of eating disorders that increase the risk of disappointment (Conceição et al., 2015; Kubik et al., 2013; Morales-Medina et al., 2010; Romanova et al., 2004; Yuan et al., 2019). Nonetheless, hormonal alterations associated with weight reduction have been documented in adolescents following bariatric surgery. Research indicates substantial enhancements in anxiety and sadness (Roberts, 2021). This underscores the necessity for long-term investigations to further assess emotional and hormonal fluctuations. Moreover, bariatric surgery is evidently not solely a physical procedure but also involves behavioral, psychological, and societal transformations. Consequently, psychological counseling and support from a psychologist are deemed a crucial element of the surgical process.

Bariatric Surgery and Informed Consent in Adolescent

Obesity has been linked to mental comorbidity, lower cognitive abilities, and language skills in adolescents, as well as an impact on the patient's autonomy and consent (Berdah, 2010; Cawley & Spiess, 2008; Li et al., 2008). The ASMBS guidelines indicate that bariatric surgery for adolescents under 18 necessitates informed consent, parental or legal guardian agreement, and, where feasible, the adolescent's acquiescence. Parents and adolescents must be apprised of the potential risks, benefits, and anticipated long-term outcomes of surgery, including the necessity for lifelong monitoring of vitamin and mineral levels following any metabolic and bariatric procedure, the likelihood of subsequent surgical interventions, the possibility of unanticipated long-term repercussions, and the risk of weight regain and recurrence of comorbidities if weight loss is not achieved (Pratt et al., 2018).

In adolescents with limited decision-making capacity and severe obesity, the most beneficial procedure for the patient should be determined by a multidisciplinary healthcare team, taking into account the adolescent's risk of obesity/comorbidities, as well as their social, cognitive, and emotional status. It is crucial to ensure that the adolescent and parents reach the clearest possible understanding. It is also important to demonstrate that the lifestyle changes necessary for postoperative success can be maintained by the adolescent and caregiver before bariatric surgery

(Bolt & van Summeren, 2014).

In situations where the adolescent has decision-making capacity, extreme caution should be exercised if there is disagreement between the parent(s) and the adolescent. Both the parent's and the adolescent's knowledge and understanding of obesity and bariatric surgery should be comprehensively assessed. The decision to proceed with bariatric surgery in adolescents must be supported by informed consent from the adolescent as well as both parents or legal guardians (Pratt et al., 2018). Currently, no standard ethical framework specifically for bariatric surgery for adolescents exists. Therefore, developing clearer, more inclusive, and more structured ethical approaches for adolescents, including those with special needs, is crucial for patients, their families, and healthcare professionals.

CONCLUSION AND RECOMMENDATIONS

Obesity is becoming increasingly prevalent during childhood and adolescence, reflecting broader changes in lifestyle, diet, and physical activity levels. The sustainability and success of interventions aimed at preventing and treating obesity are limited. Studies conducted to date show that bariatric surgery in adolescence is a reliable treatment option. While bariatric surgery provides significant improvements in obesity and associated comorbidities, it requires significant follow-up in the preoperative and postoperative periods. During adolescence, complications should be addressed in all aspects, while nutrient deficiencies, evaluation of growth and development, the course of chronic diseases, and psychosocial effects should also be considered. In conclusion, bariatric surgery can effectively mitigate obesity-related health risks in adolescents; however, the long-term efficacy of this intervention is influenced not only by the surgical method but also by various factors, including nutritional oversight, psychosocial support, familial engagement, and cultural adaptation. Future extensive and longitudinal investigations will enhance the clinical, ethical, and sociocultural framework for this therapy option.

Conflict of Interest

The authors declare that there is no conflict of interest.

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